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CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY
OF
THE UNIVERSITY OF ILLINOIS

1898-99

TIME CARD, 1898-9.

JUNIOR.

EXERCISES.	SENIOR.				
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.
Recitations, 9 to 10 A. M. {	Chemistry. Mr. Schreiner.	Pharmacy. Mr. Case.	Materia Medica Mr. Day.	Materia Medica Mr. Day.	Pharmacy. Mr. Case.
Lectures, 10 to 11 A. M. { and 11 A. M. to 12 M. {	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.
Materia Medica. Prof. Goodman.	Materia Medica Prof. Goodman.	Materia Medica Prof. Goodman.	Pharmacy Prof. Hallberg.	Pharmacy Prof. Hallberg.	Materia Medica. Prof. Goodman.
1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III and IV. Chemistry. Prof. Puckner.	1 to 5 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Gathercoal.	1 to 2 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Microscopy. Mr. Day and Mr. Gathercoal.	1 to 2 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Gathercoal.
1 to 3 P. M. Section III. Microscopy. Mr. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Microscopy. Mr. Day and Mr. Gathercoal.	1 to 3 P. M. Section II. Pharmacognosy. Mr. Day and Mr. Gathercoal.	2 to 3 P. M. Section II. Pharmacognosy. Mr. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Case.	1 to 2 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Gathercoal.
1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg and Mr. Case.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Case.	1 to 3 P. M. Section III and IV. Pharmacy. Prof. Hereth.	1 to 6 P. M. Section I and II. Pharmacy. Prof. Puckner.	3 to 5 P. M. Section I and II. Pharmacy. Prof. Hereth.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Case.
3 to 5 P. M. Section III. Dispensing. Prof. Hallberg and Mr. Case.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Case.	3 to 5 P. M. Section III. Pharmacognosy. Mr. Day and Mr. Gathercoal.	3 to 4 P. M. Section III. Pharmacognosy. Mr. Day and Mr. Gathercoal.	3 to 4 P. M. Section III. Pharmacognosy. Mr. Day and Mr. Gathercoal.	2 to 6 P. M. Section II. Pharmacognosy. Prof. Hereth.
3 to 5 P. M. Section IV. Microscopy. Mr. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Gathercoal.	4 to 5 P. M. Section IV. Pharmacognosy. Mr. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Gathercoal.	3 to 5 P. M. Section IV. Pharmacognosy. Mr. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Gathercoal.
Dispensing Laboratory opens January 3, 1899.					



THE COLLEGE BUILDING.

THIRTY-NINTH ANNUAL ANNOUNCEMENT

CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY
OF
THE UNIVERSITY OF ILLINOIS

465-467 STATE STREET, CHICAGO.

SESSION OF 1898-99.

CHICAGO
PUBLISHED BY THE UNIVERSITY

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FACULTY.

ANDREW SLOAN DRAPER, LL. D., President of the University, Urbana, Ill.

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WILLIAM BAKER DAY, Ph. G., SECRETARY OF THE FACULTY, Instructor in Materia Medica and Microscopy, 465 State Street, Chicago.

GEORGE EDWIN CASE, Ph. G., Instructor in Pharmacy, 358 Dearborn Street, Chicago.

LOUIS IGNATIUS SCHREINER, Ph. G., Instructor in Chemistry, 465 State Street, Chicago.

EDMUND NORRIS GATHERCOAL, Ph. G., Assistant in Microscopy, 465 State Street, Chicago.

HISTORY.

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College, from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and vegetable histology

were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the school, the trustees and officers of the university have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the university within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and \$100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is \$1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which for the present year amount to \$24,000, to be increased \$1,000 annually until \$25,000 is reached, which sum is then to be paid yearly thereafter.

The trustees of the university are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT.

The thirty-ninth annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, October 4, 1898, at half-past two o'clock in the afternoon, with a suitable address.

The session will continue twenty-eight weeks, closing upon Thursday, April 20, 1899, on which day the graduating exercises will be held.

AIMS AND SCOPE.

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident then, that suitable preparation for the life work of the practical pharmacist

can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on the one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies farther, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with the assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

THE COLLEGE BUILDING

is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the new elevated loop is within three blocks, and the principal depots not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

THE LECTURE HALLS

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls the building contains three laboratories of ample size, an office and reading-room, store-rooms, etc.

THE PHARMACEUTICAL AND CHEMICAL LABORATORY

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the necessary kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

THE DISPENSING LABORATORY

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

THE MICROSCOPICAL LABORATORY

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the *Materia Medica Cabinet* of over three hundred samples of crude drugs, contained in half-gallon bottles, and as many stock cans, to which the students have free access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistants, is upon the second floor, and serves as a Reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the student's perusal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

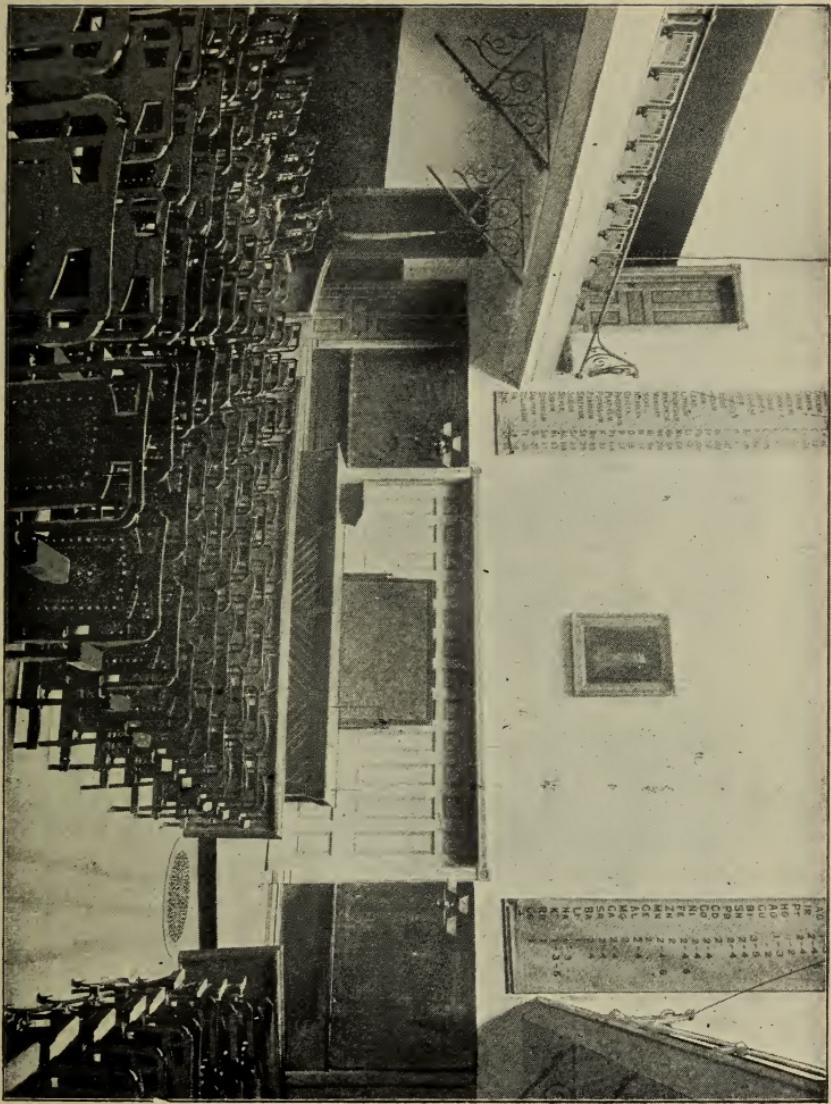
Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

REQUIREMENTS FOR GRADUATION.

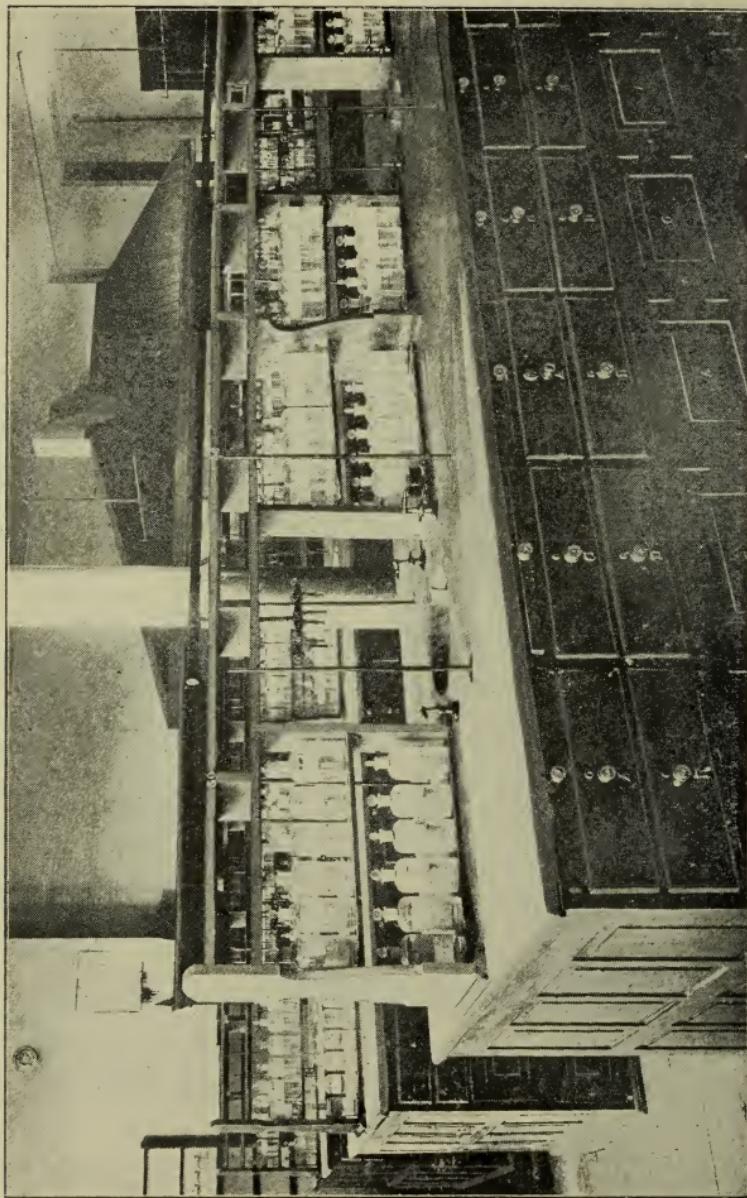
The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

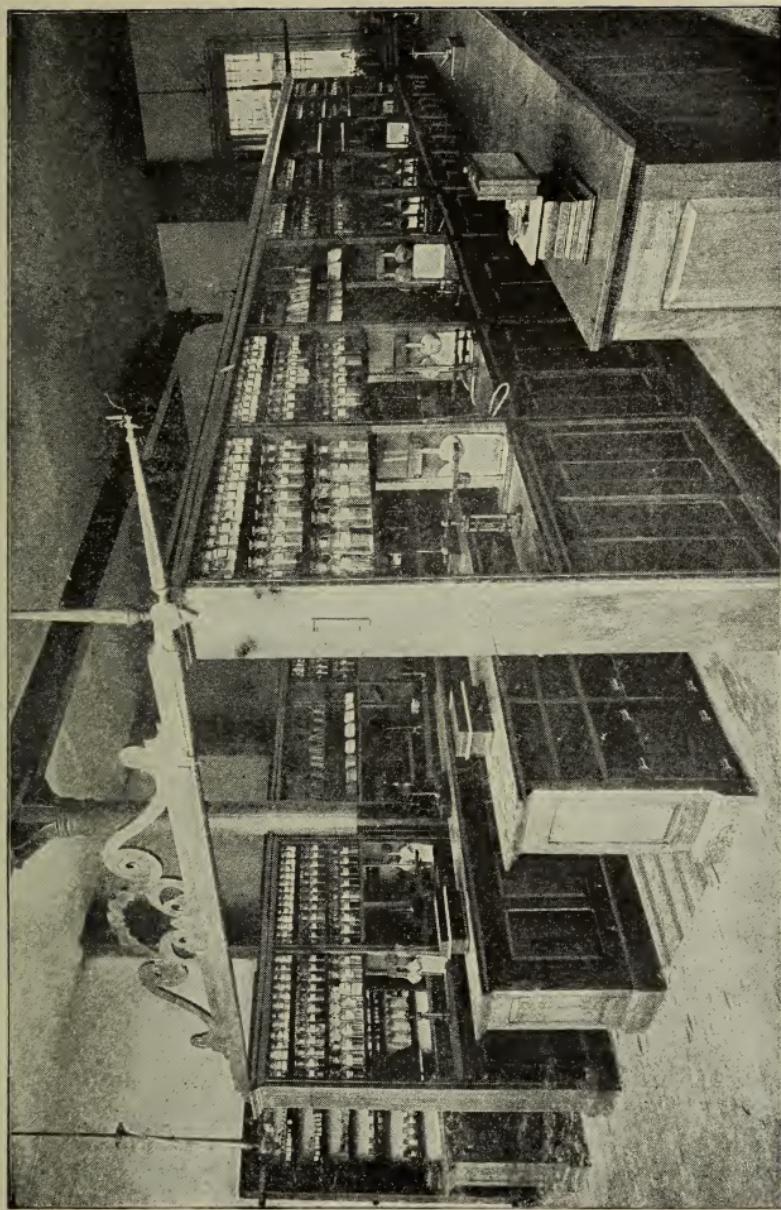
The candidate for the degree of pharmaceutical chemist must have completed the course for the degree of graduate in pharmacy and in addition must have satisfactorily finished the advanced course outlined under "Courses of Instruction." In conformity with the common usage of schools of pharmacy, drug store experience will not be required for this degree.



ATFIELD HALL—THE LARGER AUDITORIUM.

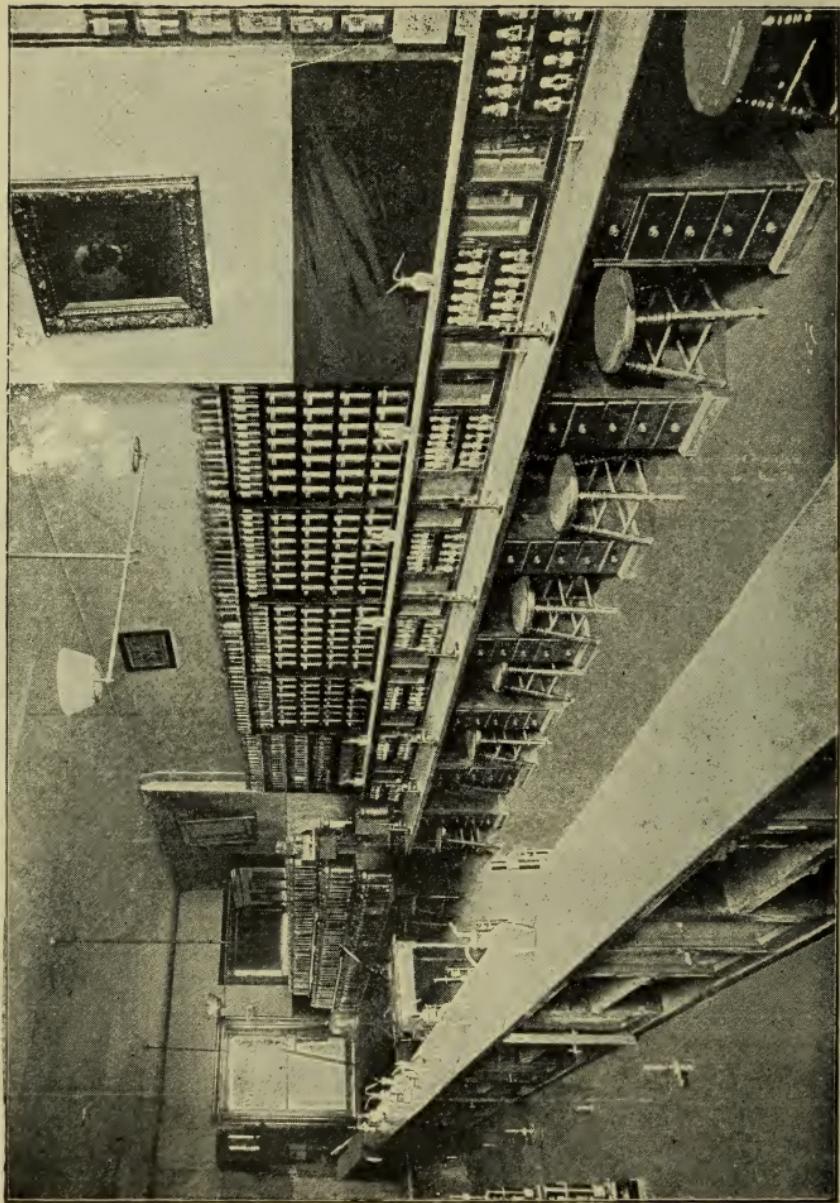


A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.



VIEW OF DISPENSING LABORATORY.

VIEW OF THE MICROSCOPICAL LABORATORY.



COURSES OF INSTRUCTION.

THE COURSE FOR THE DEGREE OF GRADUATE IN PHARMACY.

This course comprises a Junior and a Senior Year each of twenty-eight weeks in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR.

PHARMACY.

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relations to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice.

Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids.

Solution, its phenomena, effects, and causes; related processes with their dependent separative operations; filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia*.—These are grouped according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America, are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Inorganic Pharmaceutical Chemistry*.—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures.

5. *Pharmaceutical Laboratory*.—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director. Preparations typical of the official as well as unofficial classes are also made and their examination, testing, and valuation conducted so as to familiarize the student with all the requirements of pharmaceutical practice.

6. *Dispensing Laboratory*.—The exercises in this laboratory comprise the preparation of the most import-

ant solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY.

1. *Elementary Physics and Theoretical Chemistry.*—The course in physics is an introduction to the study of chemistry and the relationship existing between these two branches receives special attention. This course includes such consideration of the properties of matter and the manifestations of energy; heat, light, sound, and electricity, as is necessary for the comprehension and understanding of the application of these principles in the construction and use of the analytical balance, microscope, polariscope, spectroscope, galvanic batteries, and such electrical devices as the telephone, electric call bells, etc.

2. *General and Inorganic Chemistry.*—This course presents the theories and classification of chemistry; these being elucidated by the consideration of a few typical elements and their compounds, after which the elements and their inorganic compounds are studied in detail. Concurrently with the lectures upon this subject a number of typical compounds are prepared in the laboratory and their properties and reactions studied.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY.

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, and Pharmacognosy.

1. *Botany.*—No science is advancing more rapidly or becoming of greater utility than botany; the aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and such thorough drilling is given in plant analysis that students, at the close of the term, are able to name unknown plants. While we do not aim to graduate professional botanists, the foundation, as laid in this school, enables one so inclined to build to the highest degree.

2. *Vegetable Histology.*--This branch is a continuation of the study of the construction of organized material; its aim is to familiarize the student with the minute structure of plants; the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

Plants best illustrating the subject are chosen from among the drug-yielding or from the garden. Students become familiar with the cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is confined to the lecture room and embraces recitations and examinations. Official drugs receive the greater share of attention, but unofficial articles are duly considered in their proper places. Most of the articles used in medicine, being derived from the vegetable kingdom, are treated in their proper botanical order,

that the utility of botanical study may be constantly exemplified. Each drug is considered with reference to official requirements; concise descriptions of drug-yielding plants are given, together with truthful illustrations, habitats, commercial history, alkaloidal and other constituents, therapeutic properties, official preparations and doses. The drugs studied during the Junior Year are those derived from the cryptogams and monocotyledons.

4. *Pharmacognosy*.—This study consists in the macroscopic examination of vegetable drugs in the laboratory, following their consideration in the *materia medica* lectures. Typical specimens of these drugs are given for recognition and description, each characteristic feature being duly pointed out.

Review exercises in identification are held at regular intervals.

SENIOR YEAR.

PHARMACY.

7. *Extractive Preparations*.—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances and Compounds.*

—These are classified according to their origin, production or derivation, and treated with especial reference to their preparation and purification, their tests for identity, purity, and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starch, sugars, alcohols, and acids and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gumresins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The classification of crude drugs according to their constituents, their unofficial preparations, together with the animal products and derivatives; the ferments, their function and value as pharmaceutical and medicinal agents, concludes this course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory*.—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as the valuation of the more important alkaloidal extractive preparations, tinctures, extracts, and fluid extracts. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary. The end of the term is devoted to the study of the assay processes of the pharmacopœia, the examination of pharmaceutical preparations and the construction of formulas for unofficial preparations.

12. *Dispensing Laboratory*.—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY.

4. *Inorganic Chemistry*.—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 17.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which the student undertakes the quantitative estimation of the more important acids and bases. Later he determines the purity and strength of various pharmaceutical chemicals. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of the general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine. In the laboratory a number of typical organic compounds are prepared and examined.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA.

5. *Materia Medica.*—This course is a continuation of the first year's work in this study and the same methods of instruction are followed. (See page 18.) The drugs studied during the Senior Year are those derived from the dicotyledonous plants.

6. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year, this laboratory study closely following the lectures on Materia Medica.

7. *Microscopy*.—This branch deals with the instrument itself and includes the study of the microscope and microscopic technique, the history of its development, the optical principles involved in its construction, the function of each part, and the laws governing refraction and reflection. In connection with this the operations of lighting, focussing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc., are taught, and the various accessories and allied optical apparatus, as the micro-polariscope, micro-spectroscope, etc., are fully illustrated and explained.

8. *Vegetable Histology*.—The work of this course consists in the application of the knowledge of histological structure and microscopic methods already gained to the study of individual vegetable drugs. As far as possible such official articles are selected for study as are typical of the various plant organs of which drugs consist. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial and prepared powders of a number of important drugs.

THE COURSE FOR THE DEGREE OF PHARMACEUTICAL CHEMIST.

This course includes the work required for attainment of the degree of Graduate in Pharmacy, except the four years' drug store experience, and in addition a third year's work which is mainly devoted to Chemistry. The work of the third year extends over twenty-eight weeks and includes lectures, assigned reading, recitations, and about 1,050 hours of laboratory work. The subjects studied embrace:

CHEMISTRY.

8. *Advanced work in General Quantitative Analysis, including Water Analysis.*

9. *Plant Analysis.*—Isolation and determination of proximate principles, such as sugars, starch, alkaloids, tannins, etc.

10. *Food Analysis.*—Chemical examination and analysis of food-stuffs, as grain, flour, bread, coffee, chocolate, butter, milk, liquors, etc., for determination of their composition and the detection of deterioration or adulteration.

11. *Drug Assaying.*—A study of the various methods of assaying and the application of these in the valuation of several of the most important drugs.

12. *Physiological Chemistry.*—Continuation of work in urinalysis, (Chem. 7); detection and quantitative determination of the more common poisons in complex organic mixtures; examination of enzymes with reference to their fermentative power and study of their action under different conditions upon the various constituents of foods.

BACTERIOLOGY.

13. Bacteria are considered from the general biological standpoint, but especial attention is given to the pathogenic forms. Practice is given in the technique of staining and mounting and in the preparation and employment of culture media.

An introduction to the present knowledge of the toxins and anti-toxins concludes the course.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

PHYSICS.—Gage's Elements of Physics.

CHEMISTRY.—Puckner's *Outline of Qualitative Analysis*, Remsen's Organic Chemistry, Sadler and Trimble's *Pharmaceutical Chemistry*, Schimpf's *Volumetric Analysis*, Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Dragendorf's Plant Analysis, Cairns' Quantitative Analysis, Halliburton's Essentials of Chemical Physiology.

MATERIA MEDICA AND BOTANY.—Culbreth's *Materia Medica*, Gray's School and Field Botany, Bastin's College Botany, Gage's Microscopical Methods.

PHARMACY.—The *Pharmacopœia*, United States or National Dispensatory, Hallberg's Lectures on Pharmacy, Remington's Practice of Pharmacy, Coblenz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Dispensing.

Some of these books are used only in the Junior year, some only in the Senior year and others during both years.

PRIZES.

TRUSTEES' MEDALS.—To the junior student in the department of Chemistry having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of *Materia Medica* having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Pharmacy having the highest final average, provided it is ninety-six or over, will be awarded a gold medal. It is expressly stipulated that no student shall receive more than one medal.

ALUMNI PRIZE MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

PRIZE MICROSCOPE.—A member of the college offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on *Materia Medica* and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done by him are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

FEES AND EXPENSES.

No fee is required for matriculation.

TUITION FEES.—The tuition fee for either the Junior or the Senior year is seventy-five dollars. For the third year leading to the degree of pharmaceutical chemist the tuition fee is one hundred dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take

any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the courses, are furnished by the college without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. A deposit of ten dollars is required from those taking the pharmaceutical chemist course. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars. Attendance at these classes is not obligatory.

PAYMENT OF FEES.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

BOARD AND LODGING.—Good board and lodging, within walking distance of the college, can be had for from \$4 to \$6 per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

BOOKS.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

SELECTION OF SEATS.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT.

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all of the time of the average student yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

For further information or for matriculation blanks, address

W. B. DAY, *Actuary,*
465 State Street, Chicago, Ill.

Or, W. L. PILLSBURY, *Registrar,*
Urbana, Ill.

GRADUATES, 1898.

PHARMACEUTICAL CHEMIST.

Charles Everett Jones.

GRADUATES IN PHARMACY.

Joseph Samuel Ashmore.	Bohumil Lauber.
George William Atzel.	Bertram Maier.
John Bakkers.	Otto Herman Mentz.
Herbert Arthur Bauer.	Algy Charles Moore.
William Townzen Bowman.	Edward Paul Albert Neverman.
Bert Lemon Brenner.	Egil Thorbjorn Olsen.
Harry Alexander Clark.	Charles Francis Rainey.
Samuel Bricker Donaberger.	Ziska Erhart Schuetz,
Arthur Wardo Freeman.	Emil Henry Schultz.
Andrew Hope Harris.	Frank Siedenburg.
William Frederick Herrmann.	William Smale.
Axel Sanfred Holmsted.	Maximilian Sobel.
Hugh Benton Honens.	William Stroetzel.
Clyde Ernest Huddleston.	Charles Reuben Thomson.
George Jacob Kappus.	Charles Augustus Warhanik.
Joseph Robert Kloppenburg.	Mark Henry Watters
William Gabriel Joseph Kops.	Henry Weigand, Jr.
Ernest August Koropp.	Paul Harry Wiedel.
Charles Theodore Frederick William Ruhland.	

HONORS AND PRIZES.

SENIOR YEAR.

Class Honors:

Charles Augustus Warhanik.	Otto Herman Mentz.
Maximilian Sobel.	Mark Henry Watters.
Frank Siedenburg.	Arthur Wardo Freeman.

Prizes:

Hugh Benton Honens	- - -	Biroth Microscope.
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JUNIOR YEAR.

Class Honors:

Charles Waldron Bartells.	Walter August Jungk.
Horatius Thomas Addis Brady.	Albert Henry Heidbreder.
Harold Gideon Swanson.	William John Buchholz.
Frederick Wilhelm Woelz.	

Prizes:

Walter August Jungk	- - -	Chemistry Medal.
Harold Gideon Swanson	- -	Pharmacy Medal.

LIST OF STUDENTS.

SESSION OF 1897-8.

SENIORS.

Ashmore, Joseph Samuel.....	Elizabeth.
Atzel, George William.....	Chicago.
Bakkens, John.....	Chicago.
Bauer, Herbert Arthur.....	Kilbourn, Wis.
Bowman, William Townzen.....	Moweaqua.
Brenner, Bert Lemon.....	Rensselaer, Ind.
Clark, Harry Alexander.....	Carmi.
Donaberger, Samuel Bricker	Lebanon, Pa.
Elich, Louis Herman Frederick	Chicago.
Ellisburg, Louis Albert.....	Chicago.
Freeman, Arthur Wardo.....	Vermont.
Gray, Margaret McClintock.....	Chicago.
Harris, Andrew Hope	Alexandria, S. Dak.
Hathaway, Charles Edwin.....	Freeport.
Herrmann, William Frederick	La Salle.
Holmsted, Axel Sanfred.....	Chicago.
Honens, Hugh Benton	Milan.
Huddleston, Clyde Ernest	Farmer City.
Janda, Joseph.....	Chicago.
Jones, Charles Everett.....	Greenwood.
Kappus, George Jacob.....	Tiffin, Ohio.
Kloppenburg, Joseph Robert.....	Springfield.
Kops, William Gabriel Joseph	Chicago.
Koropp, Ernest August	Mendota.
Lauber, Bohumil.....	Chicago.
Linxwiler, Albert.....	Hillsboro.
Maier, Bertram.....	Chicago.
Martin, John Wright	Wrightsville, Ga.
Maxwell, Charles Edward.....	Odell.
Mentz, Otto Herman.....	Chicago.
Moore, Algy Charles.....	Wilmington.
Neverman, Edward Paul Albert	Neillsville, Wis.
Olsen, Egil Thorbjorn.....	Chicago.
Rainey, Charles Francis.....	Arcadia, Wis.
Ruhland, Charles Theodore Fred. Win.....	Milwaukee, Wis.
Schuetz, Ziska Erhart.....	Mendota.
Schultz, Emil Henry	Neenah, Wis.
Siedenburg, Frank.....	Elizabeth.
Smale, William.....	Chicago.
Sobel, Maximilian	Chicago.
Sorenson, John Julius	Chicago.
Steinfeldt, Adolph Emanuel.....	Stratford, Ia.
Stroetzel, William.....	Chicago.
Thomson, Charles Reuben.....	Grayslake.
Van deLuyster, John.....	Grand Rapids, Mich.

Warhanik, Charles Augustus.....	Chicago.
Watters, Mark Henry	Castleton, Vt.
Weigand, Henry, Jr.....	Chicago.
Wiedel, Paul Harry	Chicago.
Wright, Margaret Louise.....	Chebanse.

JUNIORS

Arnold, George Edward.....	Watseka.
Barnett, Moses.....	Evansville, Ind.
Bartells, Charles Waldron.....	Camp Point.
Bentley, Hugh Burton	Chassell, Mich.
Boehm, Rudolph Siegfried	Chicago.
Brady, Horatius Thomas Addis	Chicago.
Brand, Otto Axel Bernard.....	Chicago.
Buchholz, William John.....	Hooper, Neb.
Burmeister, Henry Joseph.....	Chicago.
Chism, John Sam.....	Argonia, Kas.
Condrey, Maynard Clyde.....	Oblong.
Conklyn, Frank Shelmire	Manchester, Mich.
Czaja, Peter	Chicago.
Danden, Raymond von.....	Chicago.
Dauber, Adolph	Peru.
Davis, Leonard Watkins	Topeka, Kas.
Dougherty, Arthur	Macomb.
Dudenbostel, Louis Ernest.....	Campbell Hill.
Ellmann, Alfred.....	Oconto, Wis.
Emerson, Irving Lewis.....	Sauk Center, Minn.
Fahrner, Pius Michael.....	Joliet.
Fox, Calvin Pliny.....	Chicago.
Friedlander, John David	Chicago.
Goodman, Lewis	Chicago.
Greene, Grove.....	Marshall, Mich.
Griffith, Marcus Adelbert	Dundee.
Haeseler, Frank Preston	Mt. Vernon, Ia.
Harder, Frank Ramsey.....	Pittsfield.
Harris, Frank Anthony	Galena.
Hartig, Henry.....	Peoria.
Hawley, Robert Coleman	Mound City.
Heidbreder, Albert Henry.....	Quincy.
Herbold, Charles.....	Peru.
Hoffsted, John Lawrence	Chicago.
Holiday, Oren Perry.....	Georgetown.
Hosteny, Joseph Newi.....	Chicago.
Hottinger, Joseph Andrew	Chicago.
Jansen, William Leonard.....	Quincy.
Johnson, Alva Andrew	Kilbourn, Wis.
Joubert, Louis Joseph.....	Kankakee.
Joyner, Wilbur Newell.....	Chicago.
Jungk, Walter August.....	Chicago.
Kirby, George Bell.....	Clarksville, Tenn.
Kucera, Anton.....	Hazelhurst, Wis.

McCoy, Paul Verne	Dassell, Minn.
McKinnie, Lewis Hugh	Viola.
McMillan, Herbert Lewis	Sunbeam.
Marvin, Earl Zebina	Coldwater, Mich.
Meinzer, Alonzo Edward	Sioux City, Ia.
Mercer, Robert John	Burlington, Ia.
Metz, John Joseph	Chicago.
Michelmann, Albert	Quincy.
Mitchell, Jay Howard	Chicago
Mortland, Arthur Caldwell	Edgerton, Ohio.
Mueller, Carl	Kansas City, Mo.
Munsterman, Henry Albert	Chicago,
Newland, John Beach	Palestine.
Nickerson, Howard Arthur	Buchanan, Mich.
Nikodem, Charles Valentine	Chicago.
Nims, Boyden	Mt. Holly, N. C.
Pahnke, August Albert	Chicago.
Parker, Oren Francis	Rensselaer, Ind.
Pick, Emil Edward	Chicago.
Pokorney, Frank Joseph	Chicago.
Priest, Fred Horace	Hastings, Ia.
Prince, Charles Franklin	Beardstown.
Reuter, William Conrad	Chicago.
Robson, Andrew Jackson	Joliet.
Schomer, Michael Frank	Aurora.
Seyfarth, Clarence Alexander	Blue Island.
Shambaugh, Ray Leroy	Arlington, Ia.
Slayer, Charles Elmer	Coz. d, Neb.
Smith, Frank George Douglas	Grand Forks, N. Dak.
Smith, Robert Clyde	Oak Park.
Steyer, George Edward	Chicago.
Strait, Burton Emra	Ottawa.
Susa, Joseph James	Chicago.
Swanson, Harold Gideon	Chicago.
Talbot, Francis James	Chicago.
Taylor, George Owen	Chicago.
Taylor, Raymond Eugene	Chicago.
Utt, Alfred Reuben	Pittsfield.
Vannatta, Dewitt Snow	Galesburg.
Werber Max Frederick	Chicago.
Williams, John Hamlin	Long Creek, Ore.
Wilson, Don Edward	Bonham, Tex.
Woelz, Frederick Wilhelm	Green Bay, Wis.
Wright, Herbert Collins	Rockford.
Zippel, Walter	Chicago.

SPECIAL STUDENT IN CHEMISTRY.

Barrett, William Craig, Ph. G.....Highwood.

COLLEGE CALENDAR.

1898.

Tuesday, October 4, Opening Exercises; Address, 2:30
P. M.

Wednesday, " 5, Senior Lectures begin.
Thursday, " 6, Junior Lectures begin.
Monday, " 10, Senior Laboratories open.
Tuesday, " 11, Junior Laboratories open.
Thursday, Nov. 24, Thanksgiving Day. No Session.
Saturday, Dec. 17, Last Session preceding Holidays.

1899.

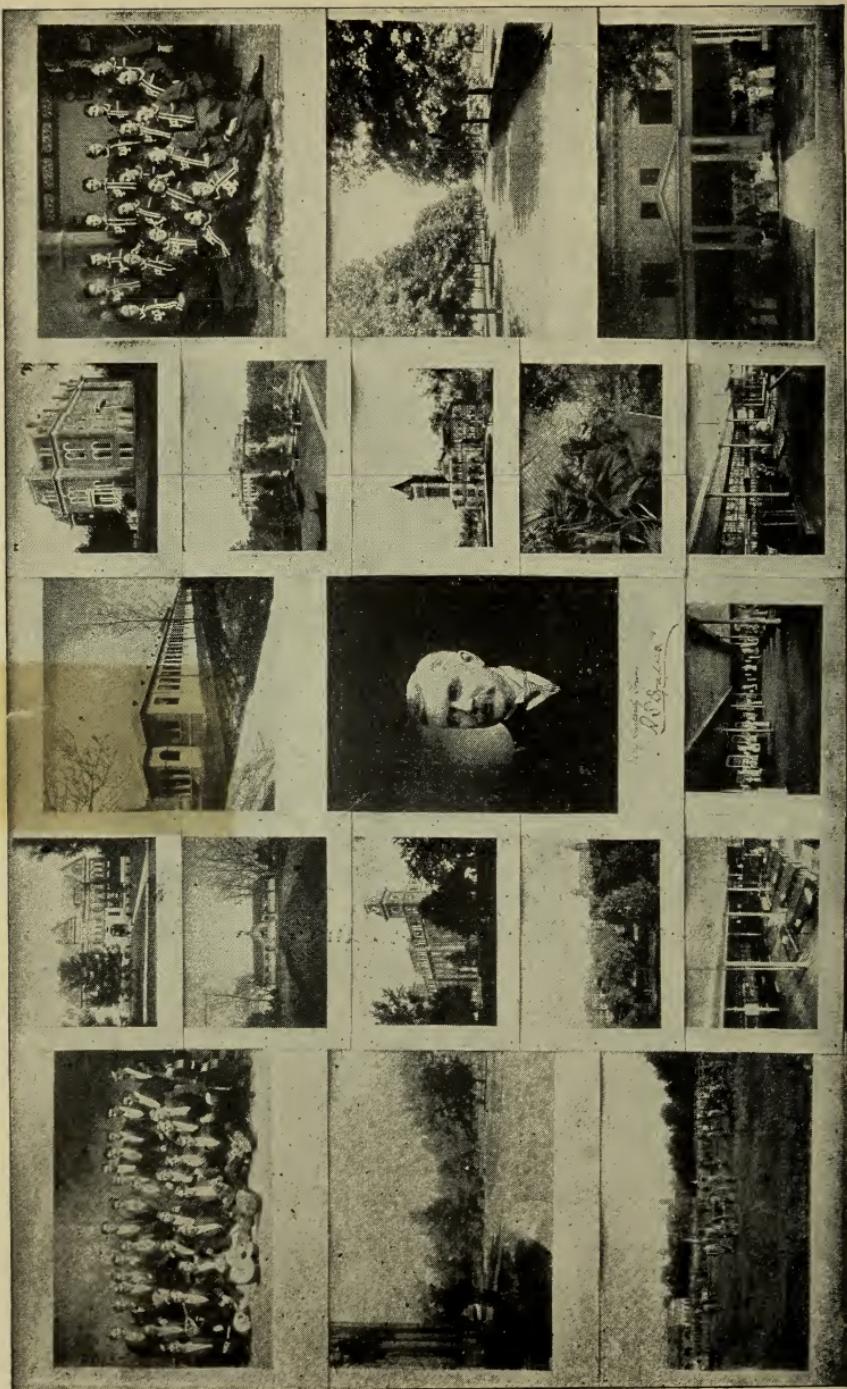
Tuesday, January 3, First Session after Holidays.

Wednesday, Feb. 22, Washington's Birthday. No
Session.

Saturday, April 1, Last Junior Lecture.
Tuesday, " 4, Final Examination. Junior.
Thursday, " 6, Final Examination. Junior.
Friday, " 7, Last Senior Lecture.
Saturday, " 8, Final Examination. Junior.
Monday, " 10, Final Examination. Senior.
Tuesday, " 11, Final Examination. Senior.
Wednesday, " 12, Final Examination. Senior.
Thursday, " 20, Thirty-ninth Commencement.
Thursday, " 27, First Botanical Excursion.
Thursday, May 4, Second Botanical Excursion.
Thursday, " 18, Third Botanical Excursion.
Thursday, June 1, Fourth Botanical Excursion.
Thursday, " 15, Fifth Botanical Excursion.
Thursday, July 13, Sixth Botanical Excursion.

NOTE.—Botanical Excursions are free to students
and graduates. Those desiring to attend these excursions
will, at the close of the term, notify the Actuary
who will, before each excursion, notify them as to the
time and place.

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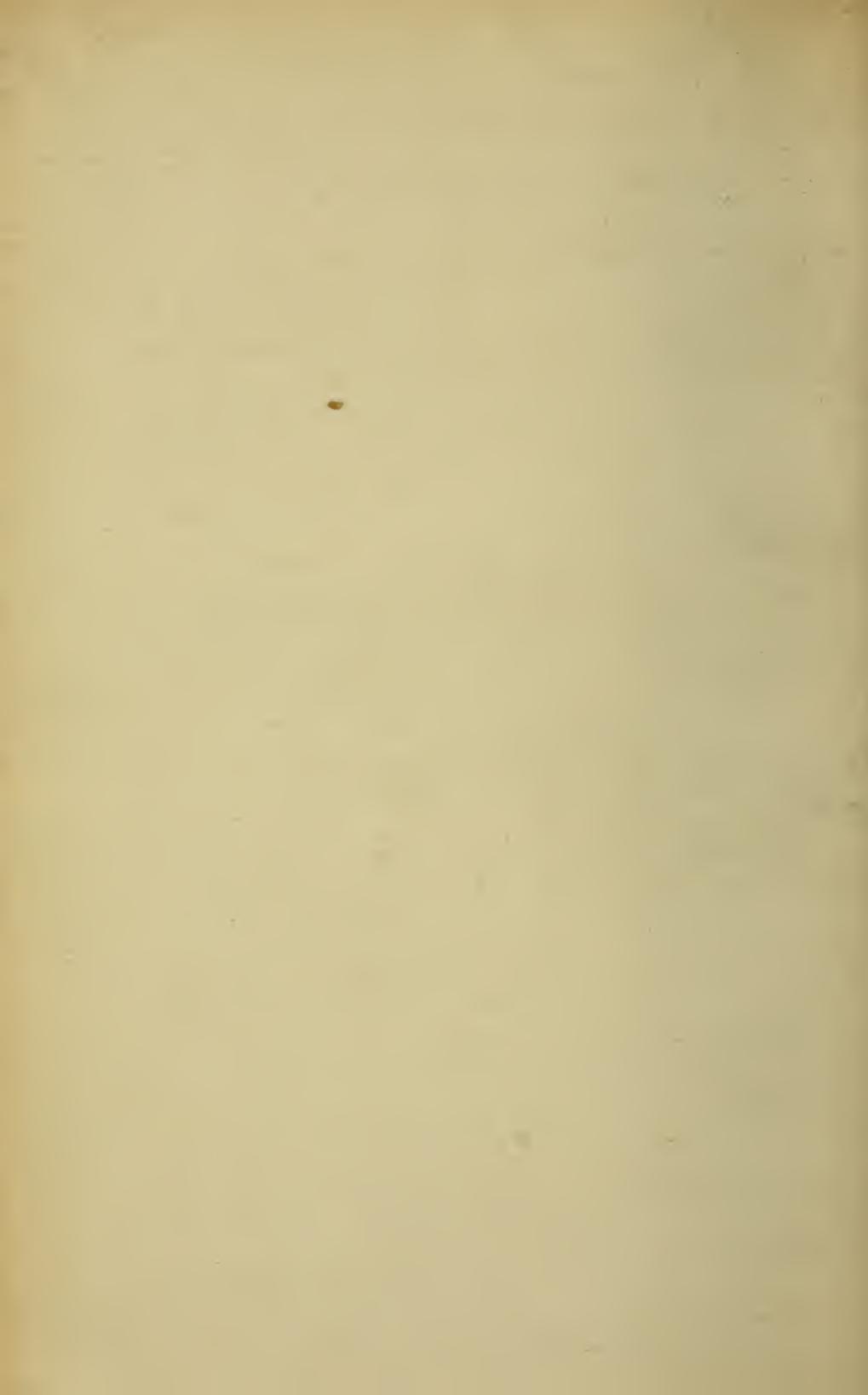
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